

Syllabus

for course at first level

Weather, Climate, Energy and Society
Väder, klimat, energi och samhälle

**7.5 Higher Education
Credits**
7.5 ECTS credits

Course code:	MO5000
Valid from:	Spring 2017
Date of approval:	2016-10-03
Department	Department of Meteorology
Main field:	Meteorology
Specialisation:	G2F - First cycle, has at least 60 credits in first-cycle course/s as entry requirements

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University 2016-10-03.

Prerequisites and special admittance requirements

Admission to the course requires knowledge equivalent to Classical physics, 30 hp (FK3014), Mathematics for the Natural Sciences I, 15 hp (MM2002) Mathematics for the Natural Sciences II, 15 hp (MM4001), Mathematics II - Analysis, part A, 7.5hp (MM5010) Mathematics II - Analysis, part B, 7.5hp (MM5011).

Course structure

Examination code	Name	Higher Education Credits
HELA	Weather, Climate, Energy and Society	7.5

Course content

The course treats weather, climate, energy use in a sustainable society, and risks and usage of radiation in different forms.

The course gives an introduction to:

- How physical laws can be applied to the state of the atmosphere, its motion, and transport of energy, gases and particles
- Weather phenomena, the general circulation, the Earth's radiation balance, the greenhouse effect, climate and climate change
- Measurement methods and numerical models for weather forecasts and their applications in our society
- Climate and Earth system models, climate projections and their accuracy and limits
- Different forms of radiation, their sources, their impact on living organisms, and their use in modern technology.

Learning outcomes

After the course the student is expected to be able to

- Use physical laws on simple meteorological problems
- Explain how a modern weather forecast is made and how it should be interpreted
- Discuss climate, climate change and environmental problems related to energy production and energy use
- Describe different types of radiation, their impact on living organisms and something about their use in modern technology.

Education

The teaching consists of lectures, laborations and exercises. Participation in laborations and associated tutorials is compulsory. If there are special reasons, the Examiner may, after consulting the course teacher, allow the student to omit certain parts of the compulsory teaching.

Forms of examination

- a. The course is examined as follows: Knowledge assessment takes the form of written examination and individual written assignment.
- b. Grades are on a seven-referenced scale: A = Excellent, B = Very good C = Good D = Satisfactory E = Sufficient Fx = Fail, some more work required F = Fail, much more work is required
- c. The grading criteria are handed out in the class.
- d. To pass requires a minimum passing grade on all component parts, as well as participation in compulsory teaching.
- e. Students who fail an ordinary examination have the right to undergo further tests as long as the course is given. The number of examinations is not limited. Having sampled all compulsory parts of the course. Students who have passed an examination may not retake the test for higher grade. A student who has successfully undergone two examinations in a course or part of a class, are entitled to have another examiner appointed, unless there are special reasons to the contrary. Such requests should be made to the Board. The course has at least two examinations for each part per academic year the year of tuition given. Intermediate years are given at least one examination.
- f. At Fx can be given the opportunity to complete up to grade E. The examiner decides which supplementary tasks to be performed and which criteria to apply in order to pass on the supplement. The addition should take place before the next examination.

Interim

Students may demand that the examination is performed according to this syllabus even after it has ceased to be valid. However, this may be done at most three times during the two years after the course was last given. The request for this should be directed to the Board of the department.

Limitations

The course may not be included in a degree together with Physics and environment (FK1004), Physics II for Teachers (FK4018), Environment and Sustainable Development - in a Physical and Geoscientific Perspective (FK4024), Modern Physics, Astronomy, Meteorology and Climate (FK4027).

Misc

The course is given together with the Department of Physics. The course is a part of the Mathematics, Science and Technology programme for teachers. The course can also be taken as a part of the Bachelor's programme in Physics or as an individual course.

Required reading

The course literature is decided by the Board of the department, and is published at www.misu.su.se at least 2 months before the course starts.